Northwest Regional Office
NOAA Fisheries National Marine Fisheries Service

QUESTIONS & ANSWERS ABOUT THE NATIONAL MARINE FISHERIES SERVICE'S JUNE 2002 ENDANGERED SPECIES ACT DECISION FOR SOUTHERN RESIDENT KILLER WHALES

Q. Why did NMFS review the status of Southern Resident killer whales for possible listing under the U.S. Endangered Species Act (ESA)?

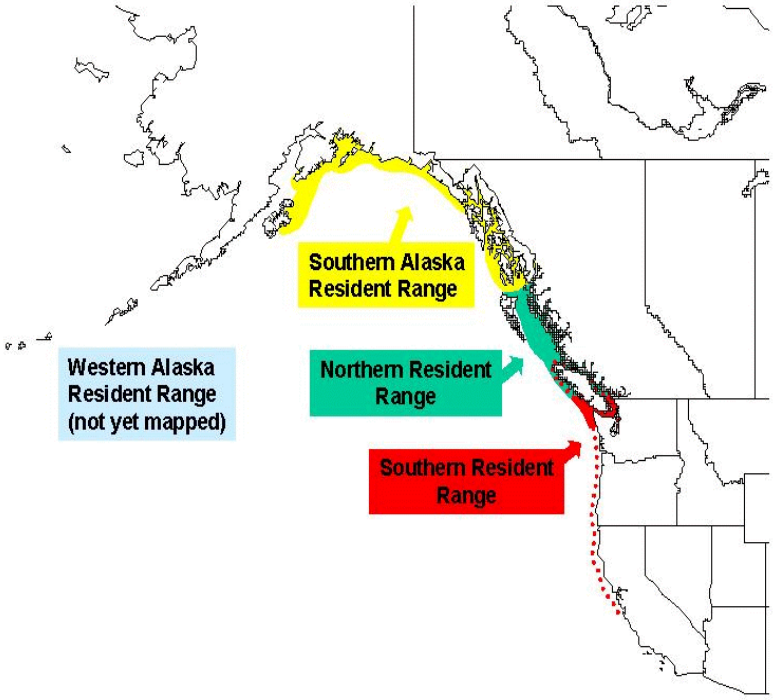
A. On May 2, 2001, the Secretary of Commerce received a petition from the Center for Biological Diversity and 11 co-petitioners to list and designate critical habitat for Southern Resident killer whales. NMFS reviewed the petition, and on August 13, 2001, announced that it presented substantial scientific information indicating an ESA listing may be warranted. This decision committed the agency to conduct a year-long status review of Southern Resident killer whales to determine whether or not they warrant a proposed listing under the ESA.

Q. What is a "Southern Resident" killer whale?

A. There are three types of killer whales in the north Pacific Ocean: residents, transients, and offshores. Resident killer whales forage primarily for fish in relatively large groups in coastal areas. Transient killer whales, whose range extends over a broader area, primarily hunt marine mammals. Transient pods are usually smaller than those of residents. Little is known about offshore killer whales, but their prey does include fish. All three of these types are classified as members of a single global species (*Orcinus orca*).

The petitioned Southern Resident killer whale population is recognized as a "stock" under the Marine Mammal Protection Act. It consists of three pods, identified as J, K, and L, that reside primarily in Puget Sound, the Strait of Juan de Fuca and Georgia Strait during the spring, summer and fall (see figure below). Southern Residents have been spotted as far south as California's Monterey Bay.

Northern Residents and the closely-related Alaska Residents, which are together recognized as another "stock" under the Marine Mammal Mammal Protection Act, occupy adjacent ranges in British Columbia and Alaska. Ranges of transient and resident whales overlap.



Q. Why did NMFS conclude that Southern Resident killer whales do not warrant listing under the ESA?

A. After reviewing the best available scientific and commercial information, the agency determined that listing was not warranted because Southern Resident killer whales do not constitute a "species" as defined in the ESA: they are not a species, subspecies, or distinct population segment. Current taxonomy classifies all populations of killer whales as a single, global species with no recognized subspecies. However, the validity of a single-species classification for killer whales is a topic of research by geneticists and taxonomists.

NMFS will re-assess the ESA status of these whales within the next four years or if new information becomes available indicating that the Southern Residents may constitute a "species" under the ESA. In the meantime, the agency is seeking additional comment and information to determine if the Southern Resident killer whale stock should be classified as "depleted" under the Marine Mammal Protection Act. NMFS will also move ahead with plans to identify research needs and conservation measures, such as increased whale-watching guidelines, that may benefit these animals.

Q. What is a distinct population segment (DPS) under the ESA and why didn't Southern Residents qualify as a DPS?

A. To warrant listing as a threatened or endangered species, the petitioned populations must qualify as a "species" under the ESA. The ESA defines a "species" to include distinct population segments, or "DPS." On Feb. 7, 1996, the U.S. Fish and Wildlife Service and NMFS adopted a policy to clarify their interpretation of DPS (see WWW.NWR.NOAA.GOV/1salmon/salmesa/fedreg/dpspolcy.pdf). The joint policy specifies key elements that must be considered when making DPS determinations, including:

• the *discreteness* of the population segment in relation to the remainder of the species or subspecies to which it belongs, and

• the *significance* of the population segment to the species or subspecies to which it belongs.

Because current taxonomy recognizes killer whales as a single global species with no subspecies, NMFS focused on determining whether Southern Resident pods could be considered a DPS under the ESA. The agency reviewed the best available scientific information for these whales, including genetic, behavioral, and life history data. From that, NMFS concluded that these whales met the "discreteness" criterion, but that they did not meet the test of significance, and thus were not found to be a DPS under the ESA.

With respect to "significance," NMFS considered criteria in the joint DPS policy and determined the following:

- *Persistence in an ecological setting that is unusual or unique for the species*. The habitat used by Southern Resident killer whales is very similar to that of the neighboring Northern Residents, and thus is not unusual or unique.
- *Loss would represent a significant gap in the range of the species*. Because transient killer whales occupy the same range as Southern Resident killer whales, extinction of the Southern Residents might not result in a gap in the taxon's range. Other resident or offshore animals could potentially re-colonize the current range of Southern Residents if that population should die off. Thus, loss of the Southern Resident killer whales would not result in a gap in the range.

- *Evidence that the Southern Residents differ markedly from other populations in genetic characteristics.* Southern Residents can be genetically differentiated from other resident killer whales, but it is unclear whether the magnitude of these differences should be considered "marked."

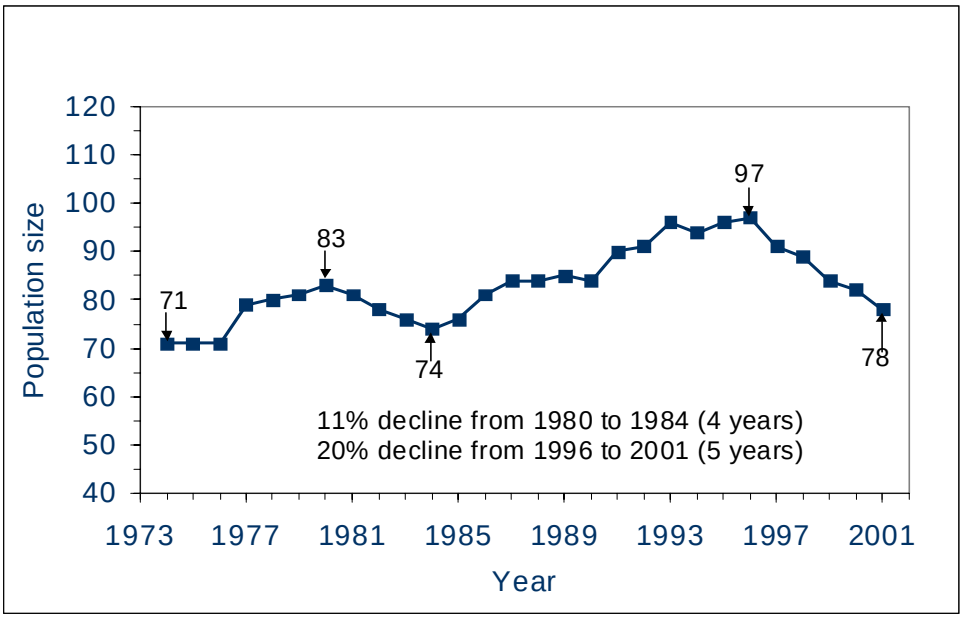
Q. How can Southern Resident killer whales qualify as a "stock" under the Marine Mammal Protection Act (MMPA) and not as a distinct population segment under the ESA?

A. "Stock" as defined under the MMPA is "a group of marine mammals of the same species or smaller taxa in a common spatial arrangement, that interbreed when mature." As such, the definition is roughly comparable to the "discreteness" test for a DPS under the ESA. Under the MMPA, there is no aspect of the "stock" definition comparable to the ESA "significance" test. Therefore the definition of a "stock" under

the MMPA need not assess the evolutionary significance of a population in the context of the entire species.

Q. How can the Southern Resident killer whales be considered a species by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) but not under the U.S. Endangered Species Act?
A. COSEWIC defines a "species" as "any indigenous species, sub-species, variety, or geographically defined population of wild fauna and flora." In some respects, the COSEWIC definition is similar to the definition of "stock" under the MMPA. The relationship of a species as defined by COSEWIC to the broader taxonomic group (killer whales globally) need not be considered when the Committee makes a status determination.

Q. Does NMFS' finding mean that Southern Residents are healthy?
A. No. The recent decline in these pods (see figure below) is cause for concern and



may require conservation efforts outside the context of the ESA. NMFS will assess whether Southern Residents qualify as a depleted stock under the Marine Mammal Protection Act, and if so, take steps under it to address risks faced by these whales.

Q. With only 78 whales left, aren't Southern Residents at some risk of extinction?
A. NMFS scientists did model extinction risk for the Southern Residents based on several scenarios and assumptions. The model indicated that Southern Residents have >10% estimated probability of extinction in 100 years (>85% in 300 years), under the assumption that the population declines observed from 1992-2001 continue. If the full 1974-2001 time series of data available is used to predict population growth, the estimated probability of extinction is 1-5% in 100 years, and 5-50% in 300 years. (The higher values are associated with increased risk of catastrophes.) If a larger group of

whales to which Southern Residents belong is modeled, such as all Northeast Pacific resident killer whales, results indicate that extinction risk is negligible over 100 years and <5% over 300 years. However, because the Southern Resident killer whale stock does not fit the definition of a species under the ESA, NMFS must focus on the estimated extinction rate of the larger group, which is negligible.

Q. What factors may be causing the recent decline in Southern Residents?
A. NMFS scientists reviewed a variety of risk factors that may affect the whales, including (in no particular order):

- Depleted food resources, especially declining salmon populations
- Competition for food with other marine mammals, such as harbor seals and sea lions
- Whale-watching impacts, including noise and boat proximity
- Oil spills and exposure to toxic chemical contaminants
- Biotoxins from harmful algal blooms
- Parasites and diseases
- Shootings, entanglements in fishing gear, and live captures in the late 1960s and early 1970s.

Some of these risks have ceased (live captures, shootings), some are believed to have little effect (parasites), and some are speculative (harmful algal blooms, future oil spills). It's not possible to point to a specific factor or factors for the recent decline of the Southern Residents, so conservation efforts will likely focus on:

- factors that have been the subject of ongoing research
- management and recovery efforts, such as salmon recovery, environmental cleanup, and prey competition with other species
- factors that can be addressed in the near term, such as impacts from whale-watching activities.

Q. Why is NMFS pursuing a depleted stock designation under the Marine Mammal Protection Act, and what will that do for Southern Residents?
A. Based on results of the ESA status review, NMFS believes that a depleted stock designation may be warranted because the Southern Resident population has declined by 20 percent in the past five years and may be below its optimum sustainable population level. Assuming that this stock may have numbered approximately 200 animals prior to live capture operations, the current population of 78 animals would place it well below a rule-of-thumb optimum sustainable population base level of approximately 120 animals.

In addition to heightening public awareness about these whales, a formal designation as a depleted stock would do two things.

First it would require NMFS to prepare a conservation plan for Southern Residents that would contain, among other things, (a) a list of site-specific management measures designed to promote recovery of the stock, (b) estimates of the costs and duration of these management measures, and (c) identities of the agencies or other entities that would be responsible for implementing the measures.

Second, a depleted designation under the MMPA would make the Southern Residents a "strategic stock." That would allow NMFS to develop conservation or

management measures to alleviate impacts to areas of ecological significance that are causing the decline or impeding recovery of these animals. These measures would be developed in consultation with the Marine Mammal Commission and other appropriate federal agencies.

Q. During the past six months there has been a lot of news about killer whale "orphans" and strandings in Washington waters. How do these relate to the Southern Residents just reviewed under the ESA?

A. Events involving at least five individual killer whales have received recent media attention. Unique body shapes/markings and tissue samples have allowed scientists to identify the type of whale involved (resident, transient or offshore), and in some cases the specific pod of origin. These include:

- **A73** - This juvenile whale has been identified as a Northern Resident, but has spent the past several months in Puget Sound independent of its pod. NMFS removed this animal from a busy shipping lane and put it into a net pen on June 13. Agency and other killer whale specialists are treating the whale for worms and a skin condition, but tests so far have indicated that it's healthy. NMFS is working with its Canadian counterpart on plans to transport the whale to Canada for release into its core range.
- **CA 188 & CA 189** - Two transient killer whales stranded in early January 2002 at Dungeness Spit, Washington. One whale died and was later identified as female CA189. The cause of death is unknown; but this whale had some of the highest levels of contaminants ever measured in killer whales. The other whale, a stranded male identified as CA 188, was radio-tagged, successfully guided back into the Strait of Juan de Fuca, and is believed to have survived.
- **L60** - This animal, a mature female from L pod, washed ashore dead in April 2002 near Long Beach, Washington. The cause of death has yet to be determined.
- **L98** - This juvenile was born in1999 to an L pod Southern Resident mother and was assumed to have died at approximately one year of age. However, in late 2001 it was identified on the outer coast of northwest Vancouver Island and appears to be living independent of its natal pod.

Of these events, only the last two animals (L60 and L98) have been identified as Southern Residents. The recentness of these events - one whale "found" and another lost to the population - precluded NMFS from including these whales in its evaluation of the estimated probability of extinction of the Southern Resident population. These events do not apply to the issue of whether Southern Residents should be considered a "species" under the ESA.